

QT
18
H855s
1914

SYLLABUS
OF
PERSONAL HYGIENE

EUGENE C. HOWE

QT 18 H855s 1914

06910560R



NLM 05047506 5

NATIONAL LIBRARY OF MEDICINE

SURGEON GENERAL'S OFFICE
LIBRARY.

ANNEX

Section

No. 113,
W. D. S. G. O.

No.

220117

3-513

Transferred from the Library
of Congress under Sec. 59,
Copyright Act of Mch. 4, 1909

SYLLABUS
OF
PERSONAL HYGIENE

BY
EUGENE C. HOWE

ASSOCIATE PROFESSOR OF HYGIENE
WELLESLEY COLLEGE

220117

LIBRARY
SURGEON GENERAL'S OFFICE
DEC 2 1914

PRINTED FOR THE USE OF STUDENTS OF
WELLESLEY COLLEGE

E 19147

QT

18

H855s

1914

COPYRIGHT, 1914
BY EUGENE C. HOWE
WELLESLEY, MASS.

OCT -8 1914

©CL A387058 ✓
R

CONTENTS.

	PAGE
Foreword.....	5
General Outline and Lecture Headings.....	9
Lecture Outlines.....	17
References.....	138

CONTENTS

1	.....
2	.....
3	.....
4	.....
5	.....
6	.....
7	.....
8	.....
9	.....
10	.....
11	.....
12	.....
13	.....
14	.....
15	.....
16	.....
17	.....
18	.....
19	.....
20	.....
21	.....
22	.....
23	.....
24	.....
25	.....
26	.....
27	.....
28	.....
29	.....
30	.....
31	.....
32	.....
33	.....
34	.....
35	.....
36	.....
37	.....
38	.....
39	.....
40	.....
41	.....
42	.....
43	.....
44	.....
45	.....
46	.....
47	.....
48	.....
49	.....
50	.....
51	.....
52	.....
53	.....
54	.....
55	.....
56	.....
57	.....
58	.....
59	.....
60	.....
61	.....
62	.....
63	.....
64	.....
65	.....
66	.....
67	.....
68	.....
69	.....
70	.....
71	.....
72	.....
73	.....
74	.....
75	.....
76	.....
77	.....
78	.....
79	.....
80	.....
81	.....
82	.....
83	.....
84	.....
85	.....
86	.....
87	.....
88	.....
89	.....
90	.....
91	.....
92	.....
93	.....
94	.....
95	.....
96	.....
97	.....
98	.....
99	.....
100	.....

FOREWORD.

There are many who really believe that better health may be attained when little or no attention is given to the care of the body, except for the avoidance of glaring abuse and the observance of common decency. There are many who have a hazy egotistical notion that their powers of recuperation are a bit better than the common run and that they are above the need of any special physical care, or that, in a pinch, "Nature" and the doctor can be depended on to give them a lift. Still others advise that one should consistently ignore the existence of his physical self.

All such views are connected with incomplete ideas of the motive power of living organisms—with the idea that mysterious, vital forces, supernatural and unknowable, are at the bottom of the processes in the living organism—that these processes are in some occult way different from the chemical processes that take place in the laboratory, and that therefore rational control is impossible.

But modern physiology is certain of its proofs that, in themselves, chemical processes in living organisms do not differ from chemical process in the lifeless test tube—that the body is a mechanism, albeit one of great complexity. If this is so, it is not unreasonable to propose that the human body may well be subjected to the same careful usage, its activities controlled with the same intelligent foresight as would be given to any engine in whose efficiency the owner was interested.

Now both these extreme views of the nature and care of the human organism are based on theories which to a large extent contradict obvious facts. And in this course we are concerned chiefly with fact, little with theory, and not at all with theory that is useless. The facts lie between these two theories of "vitalism" and "mechanism." As a matter of fact, we know perfectly well that the body is,

to a large extent, a machine. Like a machine, it requires fuel (*i.e.*, food), and the exact amount of potential energy in the food which is absorbed and "burned," is liberated by the body as heat and work. The living organism cannot add to the energy it receives in its fuel. The law of the conservation of energy holds strictly. In this fundamental respect, then, it differs not the slightest from a locomotive or any other engine.

But, also as a matter of fact, we know that the body is not merely a machine. It possesses life. And life is more of a reality than chemical processes in the same sense that thought is more real, more concrete, closer to ourselves than the objects of thought. Furthermore, objectively considered, the living processes are fundamentally different from the non-living processes in that they are self-perpetuating—perpetually maintaining themselves in unstable equilibrium, whereas non-living processes invariably reach a state of stable equilibrium—they "run down." Life is perpetual motion in defiance of environment. Life, then, is a different, bigger reality than lifelessness, and the attempt to rubber-stamp the living organism, "living mechanism"—that is, only a certain complex kind of mechanism—is as absurd as to speak of a white blackboard with the idea of establishing a new category of blackboard. A blackboard is a black board. "White" light may fall upon it and make it perceptible as a blackboard. A machine is a machine. Life may be the attribute of some machines and by virtue of it we are conscious of our own bodily mechanisms. But to identify life and mechanism, is as absurd as to identify black and white.*

What has all this to do with hygiene? Just this. Since it is a fact that the body is not merely a complex machine, on the one hand, nor merely the abode of incomprehensible vital forces, on the other, it follows that we need not degrade our conception of our living selves to a merely material level, nor need we surrender the conduct of our

* J. S. Haldane, *Mechanism, Life, and Personality*.

human mechanisms to chance or to the demons of mediaeval superstition.

Many things have been learned by experiment concerning the body's needs for its best development and most efficient service. We are certain of the beneficial effects, and of the mechanical and chemical reasons therefor—of muscular exercise, both for the muscles themselves and for many other parts of the body. We know something of the effects of diet on physical well-being. And, knowing these things, we can take thought to direct the muscular activity of the body and choose the food that furnishes the body's energy along such general lines as experience and science have shown to be productive of health and longevity. These and other things we can do for the living mechanism, with the emphasis of the word "mechanism."

But here lies the boundary of our directly controlled hygienic province. After the exercise is properly directed, and after the diet is properly chosen, our rational responsibility ends and we can affect the living mechanism further, only indirectly, through the emotions. At this point we begin to consider the living mechanism in its own unique characteristic—the metabolism of the organized individual cells—and the emphasis here is on the word "living."

These emotions may be beneficial or harmful. That an improper conception of the province of personal hygiene may lead to hypochondria, an exaggerated solicitude for the functions of the body that are outside the influence of the will, is scarcely an argument against personal hygiene. Personal hygiene includes both the volitional and the emotional, the cultivation of habits of action that are likely to lead to health (in the same way that all habits for useful living are cultivated by education and not left to chance), and the cultivation of a disposition in which there is no place for brooding, for attempted attention to those inner spheres of operation of the living mechanism with which we can not be concerned.

The human organism may be dissected into separate parts. But the activities of the living human organism

may not be so divided. In each organ, each cell, the complex of chemical processes that we call metabolism proceeds not separately but interrelated with the metabolism of every other part of the body. For example, slightly varying degrees of muscular exercise are accompanied by precisely regulated changes in the circulation of the blood, breathing movements and activities of the glands. Slightly varying external conditions, such as temperature and the composition of the air produce an immediate response in a variety of functions of the body. The changing phases of emotion produce changes in the activities of glands and muscles, and the secretion of some of these glands and the nerve impulses returned from the acting muscle, in turn reinforce and intensify the emotion. In short, whether we consider the volitional activity of the body itself, or changes in its environment, or the reaction between mind and metabolism, the living organism is a self-regulated, self-perpetuating *unit*. When we discuss any single function of the body, we must bear in mind that its separation from the rest is for convenience of discussion only, and that independent unity for a single function is impossible. It is only by a thorough grasp of this conception at the outset, and its emphasis throughout, that we can avoid an artificial conception of the living mechanism and of the means and results of personal hygiene.

Summary.

The human organism is a machine, and, as such, its activity may be rationally guided for efficient and lasting service. But, being far more than a machine, a large fraction of its activity is beyond the reach of the conscious mind, and can be safeguarded only by the frame of mind—by control of the emotions.

The human organism is a unit, with functions inextricably interlocked. Hygienic measures must be separate, but they must be planned with reference to the improvement of the organism as a whole and its maintenance as a serviceable working unit.

GENERAL OUTLINE
AND
LECTURE HEADINGS.

GENERAL OUTLINE AND LECTURE HEADINGS.

In the left hand margin are given the lecture headings corresponding to the topics of the outline.

Introduction.

- | | |
|---------------|---|
| | 1. Health. Its usefulness. |
| Lecture 1. | 2. The health problems of college life. |
| Introduction. | 3. The body as a living mechanism. |
| | 4. Preaching and practice. |

I. Personal Hygiene.

A. Directed activities of the body.

- | | |
|----------------|--|
| Lecture 2. | 1. Muscular activity. |
| Posture. | Posture. |
| | Advantages of good posture. |
| Lecture 3. | The need for special attention. |
| Posture cont.; | Practical standards of good posture. |
| Muscular | Postural defects. |
| Exercise. | Means of attaining and maintaining good posture. |
| Lecture 4. | Exercise. |
| Muscular | The mechanism of physical work. |
| Exercise, | Action and successful living. |
| cont. | The far-reaching effects of use or disuse. |
| | The muscles themselves. |
| | Other organs. |
| | Exercise, in relation to clothing, sleep, meals, bathing, sex. |
| | Danger of overdoing. |
| Lecture 5. | Fatigue. |
| Fatigue. | The sensation and the condition. |
| | Its causes, prevention, and cure. |
| | Fatigue and external temperature; and diet. |

Lecture 6.
Rest.
Vacations.

Rest.
Types of rest.
Advantage of periodic recuperation.
Practical programs.

Lecture 7.
Training.

Training.
What does it do and how is it done?
Overtraining.

Lecture 8.
Nerve
Activity.

2. Nerve activity.
Interrelation with muscular activity.
Nerve training.
Study.
Work and worry.
Emotional training.

Lecture 9.
Nerve
Fatigue.

Nerve fatigue.
Characteristics of the tired nervous system.
Nervousness. Neurasthenia.
Rest. Work and Play.
Sleep.

Lecture 10.
Use and Care
of the Eye.

3. Use of the sense organs.
Eye.
Structure and operation.
Structural defects.
Results of uncorrected structural defects.
Means of correction.
Use of the eye and symptoms of abuse.
External affections.

Lecture 11.
Ear, Nose
and Throat.

Ear. (Nose and throat.)

B. Food.

1. Requirements, diets, etc.

Physiologic requirements.

Lecture 12.

Food
Require-
ments —
Qualitative.

a. Qualitative.

Classification of foodstuffs.

Their uses.

Accessory articles of diet—
pros and cons.

Vegetarianism.

Meat eating.

Lecture 13.

Accessory
Articles and
Minor
Constituents
of Diet.

b. Quantitative.

Amount of fuel and repairing
material needed.

The Calorie.

Energy values of the food-
stuffs.

Balance sheet of the body.

Lecture 14.

Vegetarian-
ism and
Meat
Eating.

The lower limit of energy
transformation.

The latter's variation under
different conditions.

Lecture 15.

Food
Require-
ments —
Quantitative.

Claims for the bare or ample
sufficiency in diet.

Central position of protein
in the argument.

Dietary insurgents—ancient
and modern.

Lecture 16.

Special
Claims for
Bare or
Ample
Sufficiency
in Diet.

Results claimed by both
sides.

Lecture 17.

Dietaries.

Dietaries.

During growth.

For mental work.

For muscular work.

In training.

Obesity. Climate. Clothing. Age.

Size. Sex.

Dietaries in student life.

Lecture 18.
Preparation.
Cost.
Menus.

Preparation. Cost. Menus.
Preservation of food.
Cooking.
Calorie vs. weight standard.
Rock bottom of cost and the usual increments.
Sample menus.

Lecture 19.
Digestion.
The Hygiene
of Masti-
cation.

2. Digestion.
General consideration of the mechanism and operation of the digestive tract.
Hygiene of mastication.
Fletcherism and its opponents.
Care of the teeth.

Lecture 20.
Care of the
Teeth.

Lecture 21.
Digestion.
Influence
of Diet.

Influence of diet on digestion.
Digestibility and absorbability.
Digestibility and absorbability of the various foods and foodstuffs.
Water drinking and digestion.
Alcohol.
Indigestion. Its causes.
Individual peculiarities. Dangerous combinations. (?)

Lecture 22.
Autointoxi-
cation.

Autointoxication.
Intestinal autointoxication.
Intestinal residue.
Types of decomposition.
Bacteria of the tract.
Poisonous substances they may form.
Their possible effects.
Prevention of intestinal autointoxication.
Diet. Digestion. Bowel movement. Bacteria.
The "Lactic acid treatments."

Lecture 23.
Factors in
Digestion
other than
Diet.

Factors in digestion other than diet.
Appetite and hunger.
Exercise. External temperature.
Baths.
Temperature of food. Congestions.
Emotions.
Sleep. Eye strain.

Lecture 24.
The Hygiene
of Excretion.

3. Excretion.

Intestinal waste.
Composition of colon content.
Effect of diet on colon content.
Regularity of evacuation.
Intestinal lag.
Special cathartics and gentle aperients.
Shaking of viscera in exercise.
Good general body tone. The vicious or benign cycle.

The excretion of the kidney.

Normal appearance and composition of urine.
Diet and the work of the kidney.
Water drinking.
Effect of muscular work; of emotions.
Effect of external temperature.
Quack alarmism.

The lungs.

The skin.

Lecture 25.
The Hygiene
of Excretion.
The Skin.

Structure.
Excretory and heat regulating functions.
Clothing.
Shedding one's skin.
Bathing.
Kinds of baths.
For vasomotor exercise.
For cleanliness.
Soap.

Bathing and exercise; and sleep;
and feeding.

Congestions.

Sunburn and tanning.

Cosmetics.

Skin infections. Nails. Corns.

C. Environment.

1. Air.

Lecture 26.

What is Good
Air-- for
Respiration?

a. In relation to respiration.

Composition of pure air.

Composition of air in the lung
sacs.

Changes produced by breathing.

Symptoms produced by stuffy
air.

Their cause.

Classic examples of extraordi-
nary vitiation of respired air.

Sea air. Mountain air. Night
air.

Dust and bacteria.

Poisonous gases.

Ozone.

Lecture 27.

What is Good
Air—for
Skin and
Mucous
Membrane?

b. In relation to skin sensation and body temperature.

The background of conscious-
ness and the effect on it of the
air-skin contact.

The normal body temperature.

The balance of income and
outgo.

Results of disturbance of bal-
ance.

The aerial blanket.

Practical corollaries. Draughts.
Temperature and humidity in
relation to the respiratory
tract.

Humidity at low temperatures.

2. Light.

In relation to the eye.

In relation to the skin.

Lighting systems.

Lecture 28.

Health and
Disease.

3. Microorganisms:

And the healthy body.

And the diseased body.

Classification of diseases.

History of the prevention of "fevers."

Causes of "fevers."

Germ theory of disease.

Relative destructiveness of different
diseases.

Lecture 29.

The Conflict
with
Disease-
producing
Germs.

Susceptibility according to age.

Conflict with disease-producing
germs.

Offense.

Defense.

Skin and mucous membranes.

Vital resistance.

Immunity.

II. Sanitation.

Lecture 30.

The Public
Health.

1. Personal hygiene and public health.

2. The health situation in community life.

a. Foods and drink from common sources.

b. Housing. Parks and playgrounds.
Schools. Gymnasias. Baths. Streets.

c. Disposal of sewage.

d. Education and propaganda.

e. Isolation of infection.

f. Immunization.

3. The college—a parcel of the public health.
The problems there offered.

LECTURE OUTLINES.

Following each lecture outline are one or more references, the study of which, supplementing the lecture work, will be found necessary or helpful in preparing the weekly written assignment.

A place for the writing of this assignment is provided in the lower half of the third blank page following each lecture outline except the first.

LECTURE I.

Introduction.

The college course—work and play.

What does or what may it mean to the entering student?

One requisite to substantial success—health.

The importance of health in the opinion of leading men and nations.

The purpose of the course—to explain the conditions (as thoroughly as we may) of physical health and effectiveness, *i.e.*, to present some of the “rules” of health with their scientific justification, with pointed reference to the present situation—the situation of college living.

Significant facts of physiology. Theories that lead to results. The application may be made immediately.

Mrs. Jellyby’s coal-hod and the natives of Borrioboola Gha.

Some of the Problems of Immediate Personal Significance.

Posture. Correct and incorrect carriage. Manifold relations to health and efficiency. How are we sitting and standing?

Exercise. Its crucial importance and the many reasons therefor.

Nervous and muscular fatigue. A stitch in time, etc.

Eye strain. Its recognition. Its avoidance. Its far-reaching effects.

Diet. The immediate source of the body’s energy. Heavy eating or light eating. Vegetables vs. meats.

Ventilation. The requirements. Class and sleeping rooms.

Congestions. Wraps—in and out of doors. Draughts.

The study and care of health—general good-natured disregard, especially among young people.

Some of the reasons—abundant vitality, dislike of preaching, appreciation of the lecturer’s hypocrisy.

The present interest in things pertaining to public and individual health.

Over emphasis on hygiene. Introspection that leads to harm. Hypochondria. "Health should be subconscious." But too often half-health is subconscious.

The laws of physics and chemistry that obtain in the world of lifeless things. The study and application of these laws for increased efficiency in, for example, the automobile, the sewing machine.

Do these laws also obtain in living things? May they be studied and applied for increased efficiency in, for example, the human body?

Or is the latter different in some mysterious way and exempt from the laws of chemistry and mechanics.

Science maintains that living organisms are not "different," for purposes of study and investigation, except in complexity.

The human body, then, is a machine and may more suggestively be named the human mechanism. It receives potential energy in the form of food and transforms it into heat and work, but cannot create energy anew by any effort of will.

Also, as a mechanism, it is responsive to good and bad treatment, and, in the long run, predictably responsive.

But the body, for practical, hygienic reasons if for no other, must be thought of as more than a machine, possessing a principle of its own—self-perpetuating cell activity.

So considered, we may, in fact we must, follow the "let it alone" policy, trusting to luck and good Nature.

The common sense of its use, care, and studied disregard is hygiene.

Reference: Hough and Sedgwick, *The Human Mechanism*, pp. 291–292; 295–296.

The student should become conversant during the first month with the general structures and functions of the body as outlined on pages 3–54 and 65–69.

LECTURE II.

Posture.

I. Preliminary definition of the popular and scientific idea of correct carriage.

II. Wherein lies the advantage of correct carriage?

1. In greater efficiency, in the long run, for the body as a whole.
 - a. Position held with the least waste effort.
 - b. Readiness to act in any direction from the position of good carriage.
 - c. Visceral organs not disadvantageously placed.
2. Good carriage and self-respect. The posture oft proclaims the man.

III. In what ways, precisely, does poor posture decrease physical effectiveness?

1. Wasted energy in maintaining an ill-balanced position.
2. Loss of muscle tone.
3. Weakening of the skeletal architecture.
4. Malformations of bones.
5. Interference with nerve trunks.
6. Interference with action of viscera. *E.g.*,
 - a. Pelvic organs with a horizontal pelvis;
with a too-tilted pelvis.
 - b. Abdominal sliding with a hollow back. Suspension of liver, stomach, etc.
 - c. Lungs and heart under a flat chest.

IV. Why is special training necessary for a thing so natural and instinctive?

1. The horizontal vs. the vertical position of the trunk.
 - a. Compare the cat and human skeleton.

- b. Compare a saw-horse and an upright, jointed rule.
 - c. Muscular adjustments and visceral suspension.
 - d. Center of gravity and the base.
 - e. Segmental compensation—fore and aft.
2. Artificial conditions of modern life.

V. What are some of the practical standards of good posture?

- 1. Standing.
 - a. Feet. Position. (Configuration.)
 - b. Trunk.
 - Relation of the long axes of trunk and legs.
 - Vertical line test.
 - c. Shoulders.
 - Shoulder blades.
 - Position relative to ear with head erect.
 - d. Head and neck.
- 2. Sitting. Lying.

VI. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 321–333.

Bancroft, *The Posture of School Children*, Chaps. I and II.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE III.

Posture (cont.). Muscular Exercise.

VII. What are the chief postural defects and how are they begun?

1. Feet.

a. Mis-shapeness. The shoe question.

b. Toeing out.

“Weak ankles.”

Defective arches. Shoes vs. toe exercise.

2. Abnormal fore and aft curves of the spine.

a. The curved dorsal and straight lumbar curve.
The hour-glass corset.

b. The straight dorsal and curved lumbar (“bantam”) position.

c. The exaggerated S-shaped curve.

3. Corresponding positions of the pelvis.

4. Lateral curvature of the spine.

5. Shoulders. Head and neck.

VIII. What are the means of attaining and maintaining good posture?

1. General exercise. Its limitations among the artificial conditions of civilized life.

2. Dress.

3. Physical education leading to “subjective motor control.”

4. Prescription of special exercise.

5. The danger, for the unguided, of misapprehension, and aggravation or overcorrection.

Muscular Exercise.

I. Physical work—a function of the normal human organism.

1. Means—the muscles.

a. Striated muscle—largely under the control of the will.

b. Heart muscle and plain muscle—not under the control of the will.

2. The muscle-nerve combination.
3. Afferent and efferent nerves.
4. Number and arrangement of muscles.

II. Physical work—action—expression and impression—essential:

- as a part of the mind's activity;
- in our relations with our fellows;
- as part of a whole individual.

III. Skilled and effective action and a healthy body mechanism—developed primarily by muscular exercise.

- a. The proof of the pudding.
- b. The receipt for the pudding.

IV. What happens when muscles are not used?

1. The law of use and disuse.
2. The amount of muscle tissue in the body.
3. The results of an unhealthy condition of this mass.
 - a. Loss of muscle tone.
 - b. Poor posture.
 - c. Accumulation of fat.
 - d. Weakening of automatic functions.
 - e. Lowering of vital resistance.

V. What is the result of the systematic use of the muscles and why?

1. Effect on the muscles themselves.
 - a. The muscle as a harnessed team.
 - b. The ability to use the whole of a muscle.
 - c. Consequent good tone.
 - d. Good posture made possible.
 - e. Increase in quantity and improvement in quality by increased food and oxygen supply, and increased waste elimination.

Increased lymph flow—changing the cell environment.

VI. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 304–320, 403–412.

Bancroft, *The Posture of School Children*, Chaps. XI, XV.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE IV.

Muscular Exercise (cont.).

2. Effect on other organs and functions.

a. Circulation.

Heart. Its only means of exercise.

The importance of its exercise.

The heart's work with the body at rest
—during exercise.

Arteries. Blood pressure and arterial elasticity.

Vasomotor exercise. Congestions.

b. Respiration. Deep breathing. Impossibility of substituting forced breathing.

Effect of deep breathing on the breathing
muscles:

on lung tissue;

on lymph flow.

c. Digestion.

The normal appetite and prompt nutrition.

Plain muscle tone.

d. Excretion. The intestines. Lungs and skin.

VI. Clothing.

VII. Exercise in relation to meals, sleep, bathing. Exercise for men and women compared.

VIII. Formal and informal exercise. The danger of overdoing. The heart, nervous system, and alimentary tract.

IX. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 132-161.

Hutchinson, *Exercise and Health*.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE V.

Muscular Fatigue.

I. Muscular activity. Its limitation by the condition of fatigue.

II. Muscular overexertion.

Its harmful effects on muscles, heart, and nerves.

The sensation of fatigue as an automatic deterrent to overexertion.

III. The distinction between fatigue and laziness.

IV. The extreme fatigue condition a disease condition.
Instances.

V. Normal fatigue.

1. Its prevention.

a. Lessening the waste of antagonism and friction.

b. Hardening the mechanism by training.

2. Its cure. Rest.

a. Varied activity.

b. Inactivity.

VI. What are the causes of fatigue?

1. Exhaustion of the food supply within the body.

2. Wearing out of the cell machinery of muscle and nerve.

3. Accumulation of waste products.

VII. How do these changes affect the organism?

1. They give rise to the sensation of fatigue.

2. They give rise to the condition of fatigue by affecting some part of—

VIII. The muscle-nerve combination—

The chain—nerve cell, nerve fiber, end-plate, muscle fiber.

Relative strength of the links.

IX. Influence of environment on fatigue.

The nature of the action of spurring stimuli.

X. External temperature and fatigue.

"Bracing cold."

"Spring fever."

XI. Diet and fatigue.

XII. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 55-62, and p. 316.

Stiles, *The Elements of Fatigue*, *Science Con-
spectus*, III, 2, 1913.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE VI.

Rest. Vacations.

I. The aim of muscular exercise—a healthy mechanism and sustained, effective activity. Most work with the least fatigue.

II. The means of attaining the best working activity.

1. Passively by the cure of fatigue—properly timed rest.
2. Actively by postponing and preventing fatigue—training.

III. Rest.

1. Varied activity compared with—
2. Inactivity.

IV. The nervous system's part in muscular fatigue and rest.

V. Some facts proving the advantage of regular, periodic recuperation.

1. The nature of the heart's action.
2. Standing vs. walking.
3. The ergograph.

The load to be lifted or resistance to be overcome.
The time between efforts.

The length of rest needed for recuperation when action is continued beyond the beginning of fatigue.

Sustained vs. single efforts.
Effects of massage.

4. Examples from commercial reform.

VI. Practical deductions for everyday work.

VII. Practical programs. (For the large part played by nerve fatigue, see Lecture IX.)

The day's work.

Eight hours' sleep.

Real relaxation between recitations.

Siesta.

Relaxed position between periods of games.

The after dinner half-hour.

The week's work.

Saturday afternoon "rest."

One day in seven.

The year's work.

The common sense of vacations.

VIII. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 340-343.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE VII.

Training.

I. The active means of muscular and bodily improvement—of becoming fit.

II. General hygiene. Diet. Autointoxication.

III. How does the trained differ from the untrained person?

1. Endurance. The ergograph test.

2. Strength. The "knowing how."

3. Muscular soreness.

4. Feeling of fitness.

5. Vital resistance to disease.

IV. Exactly what are the means of training?

1. Graded exercise—"extending the boundaries of the normal," supplemented by—

2. General hygiene.

V. The principal goal—endurance or strength?

VI. Precisely how is the mechanism changed in training?

1. The muscles and nerves.

a. Increased resistance to fatigue.

b. Increase in size and improvement in quality of muscles.

c. Ability to use the whole muscle at will.

d. Coördination.

2. The body general.

a. Internal secretion.

b. Hoarding of fuel.

c. Efficient metabolism.

d. Responsive circulation.

VII. Is training debilitating in the long run?

1. Training for condition.

2. Training for contest.

VIII. Overtraining. Tension on heart, lungs, nerves, and digestive system.

IX. The use of drugs to efface fatigue. Coffee. Tea.

X. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 70-87.

Lee, *Physical Exercise from the Standpoint of Physiology*, *Amer. Phys. Educ. Rev.* XIV, 4, Apr., 1909.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE VIII.

Nerve Activity.

I. Interrelation of nerve with muscle activity.

1. In conscious action.
2. In reflex action.
3. In functions not connected with consciousness.

II. Nerve-training. Registry of impressions. Cultivation of association paths. Reflex action. Formation of habits.

III. Study. Habits of study.

Time of day.

After meals.

Influence of environment.

Attention.

Amount.

Eye strain.

IV. Work vs. worry.

The essence of worry—attention to intervening and extraneous matters instead of the immediate thing to be done.

—“the insistent thought.”

The displacement of worry.

V. Emotional training.

Introspection and hypochondria. Doubting. Fear.

Antidotes.

Democratic companionship.

Outdoor sports. Good winners and good losers.

Theater and fiction.

VI. Physical reinforcement of emotion. “Character leakage.”

VII. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, p. 204, par. 21; p. 344, par. 11 and 12; p. 353, par. 9.
Stiles, *The Nervous System and its Conservation*.

The space below is reserved for the written assignment.
Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE IX.

Nerve Fatigue.

- I. Nerve fatigue—connected with muscular work;
connected with mental work;
connected with worry and kindred emotions.
- II. Characteristics of the tired nervous system.
The vicious cycle.
Instances.
- III. Headaches. Eye strain.
- IV. Nervousness. Neurasthenia.
 1. Predisposition.
 2. Causes. Difficulty of distinguishing between causes and
 3. Symptoms.
 4. Treatment.
 - a. General hygiene.
 - b. Rest.
 - c. Diverted attention.
 - d. "Mind cures."
- V. Rest, depending on the kind and cause of fatigue.
(See first topic.)
The selection and combination of
 - a. Muscular activity.
 - b. Complete quiet.
 - c. Exercise of the emotions.
 - d. Sleep.
- VI. What is play and when is work play? May play become work?

VII. "The curve of mental work."

The alternation of mental work and play or rest, for the best results. See Lecture VI, "Practical programs."

VIII. Sleep.

1. The necessity for sleep—personal differences.
2. Depth of sleep.
3. Dreams.
4. Hours of sleep.
5. Sleep and diet. Exercise. Baths.
6. Sleeplessness.

IX. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 153; 333-345.

Courteney, *The Conquest of Nerves*.

Walton, *Why Worry?*

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE X.

Use⁷ and Care of The Eye.

I. The receiving end of the nervous system. Eye, ear, organs of touch, taste, and odor.

II. Structure and operation of the eye.

III. Tax imposed on the eye by modern civilized life.

IV. Structural defects.

1. Near-sightedness or myopia.
2. Far-sightedness or hyperopia.
3. Astigmatism.

V. The results of uncorrected structural defects.

Eye strain.

VI. Means of correction.

Expert prescription.

Lens fitting.

VII. Practical matters in regard to the use of the eyes.

1. Illumination.
2. Moving objects.
3. Size of print and quality of paper.
4. Needlework.
5. Rest for the eyes.
6. Position of head and book.
7. Proper fitting and wearing of glasses.
Spectacles.
Pincenez.

VIII. Symptoms of abuse.

1. Blurring.
2. Headaches.
3. Indigestion, watering and inflammation of the eyes,
and other reflexes.

IX. External affections.

1. Granulated lids.
2. Infections.

X. Abrasions.

XI. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 246-256; 395-399.
Pyle, *Personal Hygiene*.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE XI.

Ear, Nose and Throat.—Colds.

I. The ear.

1. Structure.
2. Positive hygiene—limited. “Let it alone.”
3. Avenues of possible injury.
 - a. External canal—attempted removal of ear-wax;
entrance of foreign objects;
great concussions.
 - b. Eustachian tube—infection by too strenuous
nose-blowing;
infection by unwise use of
nasal douche.
4. Earache. Cause; prevention; relief.
5. Special medical prescription for any abnormality.

II. Nose. Its structures and functions.

1. Nose vs. mouth breathing.
2. Causes of mouth breathing.
 - a. Adenoid growth.
 - b. Defective nose bones.
3. Nasal affections. “Cold in the head.” Catarrh.
 - a. The effect of dry air on the membranes.
 - b. The effect of cold air.
 - c. Nervous congestion of the nasal membrane.
 - d. Bacterial infection.

III. “Throat.” Pharynx.

1. Tonsils.
 - a. As possible obstructions and entries for infection.
 - b. Opinions on the desirability of their removal.
2. Base of the tongue. Its cleanliness.

IV. Larynx.

1. Care and cultivation of the voice.
2. The disagreeable voice—singly and ensemble.
Cause and effect of worry and nervousness.

V. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 258–261; 380–394; 401–402.
Pyle, *Personal Hygiene*.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE XII.

Food Requirements—Qualitative.

I. Articles of diet.

II. Definition of food and foodstuffs.

Classification of foodstuffs.

III. What purposes, separately and in common, do the foodstuffs and other articles of diet serve?

A. Foodstuffs.

- a. Protein. The composition of the tissues.
The fact of constant waste.
The necessity of repair.
Differences among proteins for repairing.
Vegetable and animal proteins compared.
Desirability of a variety in the diet.
Fuel value of protein.

b. Carbohydrates.

- Use as fuel.
- Transformation into fat for storage.
- Essential to the successful use of fats and proteins both in repair and in production of energy.

c. Fats.

- Use as immediate source of energy.
- Stored as adipose tissue.

B. Other articles of diet.

a. Water.

- Its amount in the body.
- Its presence in foods.
- The need of water as such in the diet.

- b. Salts. Their function. Occurrence in the diet.
- c. Vitamines. Elements of food likely to be lost in over-refining.
- d. Stimulants.
- e. Condiments, flavors, etc.

IV. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 88-93; 217-233.
Lusk, *The Fundamental Basis of Nutrition*.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE XIII.

Accessory Articles and Minor Constituents of Diet.

I. Vitamines—Nature's "impurities."

1. Definition.
2. Effect of eliminating them from the diet by over-refinement. *E.g.* polished rice, white flour, sterilized food.
3. Danger only with restricted diet.

II. Water.

The maintenance of the water content of the body.

Ample water in the diet to

- (1) promote healthy action of the intestines;
- (2) ease the work of the kidneys;
- (3) induce perspiration.

III. Stimulants.

1. Coffee.

- a. The stimulating constituent.
- b. Its physiological effect.
- c. Points in its favor.
 - (1) Postpones fatigue.
 - (2) Stimulates the heart.
 - (3) Acts as a diuretic.
 - (4) Excites mild perspiration.
 - (5) In moderation, stimulates digestion in the stomach.
 - (6) Stimulates peristalsis.
 - (7) Pleasant flavoring material.
- d. Points against.
 - (1) Strong coffee retards digestion.
 - (2) The coffee habit.
 - (3) Heart palpitation and muscular tremors.
 - (4) Use by children.

2. Tea. Coffee and tea compared.

3. Cocoa.

Food and stimulant value compared with tea and coffee.

4. Alcohol. Its value

a. As a relish; b. a food; c. drug; d. cerebral alterative; e. alcohol as a poison.

5. Condiments and extractives.

a. Beneficial action,

May promote flow of digestive juice.

b. Harmful action.

For the former—normal vs. artificial hunger;
inflammation of the digestive tract.

For the latter—imposition of fatigue products on the organism.

IV. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 219, 354, 361-376.

Stiles, *Nutritional Physiology*.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE XIV.

Vegetarianism and Meat Eating.

I. Grades of vegetarians.

II. The claims for vegetarianism.

1. Humanitarian and moral claims.
2. Competitive tests and individual examples.
3. All-sufficiency of vegetables.
4. Man, anatomically, an herbivorous animal.
5. Economic arguments.

III. Arguments for and against meat eating.

1. For.

- a. The human instinct.
- b. The human dentition and intestine.
- c. Lack of evidence the meat eating leads to deterioration of character.
- d. Relative effects of the embracing of vegetarianism and the simultaneous renouncing of bad habits.
- e. Competitive tests and individual examples.
- f. Diets of races.
- g. Need of ample protein and the difficulty of getting it from a moderate bulk of vegetables.
- h. Natural flavors of meat improve digestion.
- i. Meat proteins more easily and completely absorbed.

2. Against.

- a. Meat-eating favors overindulgence.
- b. May aggravate rheumatic disease.
- c. May lower the general tone by taxing the mechanism of excretion.
- d. May favor growth of undesirable bacteria in intestinal tract.
- e. May introduce diarrhoeal infection.

IV. The moderate view.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 240-243.

Stiles, *Nutritional Physiology*.

Lusk, *The Fundamental Basis of Nutrition*.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE XV.

Food Requirements—Quantitative.

I. The two quantitative requirements.

1. Sufficient protein for tissue repair.
2. Sufficient fuel (protein, carbohydrate, fat) to heat the body and furnish energy for work.

II. Methods of measuring fuel——

1. In weight units.
2. In heat units.

III. The CALORIE. Its determination.

IV. The heating value of the three foodstuffs.

V. The least amount of protein for the body's repair.

VI. The balance sheet of the body. Potential energy income = kinetic energy outgo + heat energy outgo, minus energy of any foodstuff stored. Experimental proof.

VII. The lower limit of heat production per day of an individual of given weight at rest.

1. The effect of digestion of food.
2. The effect of exercise.
3. The effect of mental work.

VIII. Variation of the heat production with

1. Size (surface area of the individual.)
2. Age and sex.
3. Climatic conditions.

IX. Type combinations of the foodstuffs that will furnish the required energy.

X. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 211-217.

Lusk, *The Fundamental Basis of Nutrition*.

The space below is reserved for the written assignment.
Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE XVI.

Special Claims for Bare or Ample Sufficiency in Diet.

I. Individual bias.

II. The interdependence of questions of quantity and quality. The central position of protein in the argument.

III. Dietary insurgents, ancient and modern.

IV. The results which both systems claim to attain.

1. Physical endurance and resistance to disease.
2. Physical strength.
3. Mental clearness and power.
4. Emotional stability.
5. Long life.

And underlying these,

6. A properly exercised digestive tract.
7. A non-poisonous intestinal content.
8. Comfortably loaded excretory organs.
9. Elastic circulatory system.

A. How a meager dietary claims to accomplish these results. Its attack on abundance in diet.

- a. Experimental evidence of the fact itself of accomplishment. The New Haven experiments.
- b. The reliability of appetite as a guide to feeding.

- (1) Primitive vs. civilized conditions.
- (2) Historical evidence.
- (3) Popular impressibility.
- (4) Cultivation of extravagant tastes.
- (5) National success, cause or effect of high diet.

- c. Moderation of demands on intestinal tract.
 - d. Avoidance of intestinal poison.
 - e. Avoidance of wear and tear on excretory organs and accumulation of fatiguing substances.
 - f. Retention of arterial elasticity.
- B. How an abundant diet claims to accomplish these results. Its counter attack.
- a. Criticism of the above experimental evidence.
 - (1) Too short duration.
 - (2) Reversion.
 - (3) Picked subjects and comfortable conditions.
 - (4) Abundant variety of food.
 - b. Some of Crichton-Browne's criticism.
 - c. High feeding treatment against disease.
 - d. Factors of safety in the mechanism of metabolism.

V. Examples of the quantities recommended in the two systems.

VI. Reservation of judgment.

Danger of set rules in all conditions of life.

Personal experiment and individual self-judgment.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 347-348; 351.

Stiles, *Nutritional Physiology*, pp. 207-211.

Lusk, *The Physiological Basis Nutrition*, pp. 27-35.

Crichton-Browne, *Delusions in Diet*.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE XVII.

Dietaries.

I. During growth.

1. Excess food needed—
 - a. to build up new tissues;
 - b. for instinctive activity;
 - c. on account of larger proportional body surface.
2. The double danger of disproportionate sugar feeding.
3. Salts.
4. Sample meals and foods.

II. Diet of the adult under varying conditions.

1. Mental work.
 - a. The fish and phosphorus fad.
 - b. Patented foods.
 - c. Fatty diet and brain activity.
 - d. Choice of food for digestibility.
2. Muscular work.
 - a. Carbonaceous or nitrogenous foods?
 - b. The amount corresponding to the expended energy.
 - c. Muscle tissue building.
3. Training.
4. Obesity.
 - a. Fatty degeneration and adipose accumulation.
 - b. Causes of obesity. The viscous cycle.
 - c. Dietary prevention and cure.
5. Climate.
6. Clothing.
7. Age.
8. Size.

9. Sex.

- a. and the kind of food chosen;
and the amount of food chosen.
- b. Normal reasons for the difference between the
sexes in diet. Unnecessary differences.

10. Dietaries in student life.

III. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 233-240.

Jordan, *The Principles of Human Nutrition*.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE XVIII.

Preparation. Cost. Menus.

I. Forms of marketed food.

II. Preservation.

1. Sterilization by heat. Effect on vitamins.
2. Drying. Concentration.

III. Cooking. Modification of food values.

IV. General facts.

1. Watery foods and dry foods compared.
2. Foods rich in protein.
3. Foods rich in starches and sugars.
4. Foods rich in fats.
5. Sources of various kinds of mineral matter.
6. One-sided foods.

V. Cost.

1. The most suitable standard for judging money worth of food—weight standard or fuel value standard?
2. Vegetable and animal foods compared.
3. Cost among vegetable and among animal foods.
4. The digestible portion.
5. Waste.

VI. The rock bottom of cost.

The necessary increment for variety.

The necessary increment for enjoyment.

VII. Sample menus.

VIII. Overeating and social parasitism.

"The simple life." "The strenuous life."

IX. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, p. 349.

Jordan, *The Principles of Human Nutrition*.

Lusk, *The Fundamental Basis of Nutrition*.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE XIX.

Digestion. The Hygiene of Mastication.

I. General consideration of the digestive tract. Purposes, manner, means of digestion.

1. Prealimentary digestion.
2. Alimentary digestion.
 - a. The mechanical and chemical means.
 - b. Blood supply and nerve control.

II. Mastication.

1. Its double purpose.
2. Foodstuffs affected.
3. Salivary digestion in the stomach.

III. Swallowing.

IV. Digestion in the stomach.

1. Mechanical action. Size of the stomach.
2. Gastric juice.
 - a. The psychic initiation of gastric flow.
 - b. The continued stimulation by arriving food.
 - c. The amount of digestion and absorption and the kinds of foods treated in the stomach.

V. Digestion in the small intestine.

1. Escape of the food, piecemeal from the stomach.
2. The movement of the intestines.
Forward march. Marking time.
3. Digestive juices in the intestine.
 - a. From the pancreas.
 - b. From the liver.
 - c. From the intestinal lining.
4. The foodstuffs affected by these and absorbed.

VI. Large intestine. Recovery of water.

VII. The hygiene of mastication.

1. The so-called American sin.
2. Historical and parental admonition.
3. Fletcherism.
 - a. Its claims. Individual experiences.
 - b. Its effects—on digestion;
on amount of food taken and on
waste eliminated.
 - c. Confirmatory experiments.
 - d. Criticisms.

VIII. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 96-128, 155; p. 349, paragraph 3.
Stiles, *Nutritional Physiology*.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE XX.

The Care of the Teeth.

I. The influence of imperfect teeth.

1. On digestion.
2. As a nest for undesirable bacteria which pass,
 - a. To the alimentary tract;
 - b. To the blood stream.
3. Odors. The expiratory nuisance.

II. Imperfections.

1. Dental cares.
2. Tartar.
3. Pyorrhoea.
4. Abscesses.
5. Irregular arrangement

III. The beginnings of cavities.

1. Acid fermentation in the mouth and softening of the enamel.
2. The mucous plaque.
3. Bacterial action.
4. Kinds of food that favor decay.

IV. Prevention.

1. Examination—biennial.
2. Removal of detritus.
 - a. Brush where the brushing is needed.
Amount of cleansing needed.
 - b. Dental floss.
 - c. Tooth picks.
 - d. Powders and pastes.
3. Mouth washes. Virtues, real and alleged.

V. What is tartar?

Its accumulation. Encroachment below the gums.
Removal.

VI. Root abscesses—blind and leaking. Their supposed effects—nervous and bacteriological.

VII. Orthodontistry.

VIII. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 98–101.

Pyle, *Personal Hygiene*, pp. 17–25.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE XXI.

Digestion. Influence of Diet.

I. Digestibility of food.

Meaning of the term—covers—

- a. Completeness of digestion
 - b. Rapidity of digestion.
 - c. Comfort of digestion.
- } (Absorbability.)
(Digestibility.)

II. Absorbability of the chief foodstuffs.

1. From animal sources.
2. From vegetable sources.

III. Influence on structure on absorbability and digestibility.

1. Influence of cooking on structure.
 - a. Solution.
 - b. Gelatinization.
 - c. Coagulation.
 - d. Changes in starches and sugars.
2. Absorbability and digestibility of various foods and foodstuffs.
 - A. a. Meats. b. Soups. c. Eggs. d. Milk.
e. Breads. f. Pastry. g. Puddings.
h. Vegetables.
 - B. a. Protein.
b. Starches. Sugars. Cellulose.
c. Fats.

IV. Water and digestion.

1. The absorption of water.
2. Hot water. Ice water.
3. Waters of varying properties and composition.
4. With meals.

V. Salts.

VI. Alcohol.

VII. What is indigestion and what are its causes.

1. Stomach, small intestine, colon—relative frequency.
2. Possible causes.
 - a. Poisoning.
 - b. Incomplete mastication.
 - c. Over-feeding.
 - d. Deficient secretion.
 - e. Fermentation.
 - f. Incomplete elimination.

VIII. Individual peculiarities.

IX. Dangerous combinations—myths.

X. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 354–356.

Jordan, *The Principles of Human Nutrition*.

Stiles, *Nutritional Physiology*.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE XXII.

Autointoxication.

I. General significance of the term.

II. Intestinal autointoxication.

1. Intestinal content—its nature.
2. Intestinal residue—
 - a. Food waste.
 - b. Excretions from walls of intestine.
 - c. Bacteria.
3. Composition of food waste.
4. The two types of decomposition.
5. The bacteria of the tract.
 - a. The two chief types and their action of the food waste.

First type (*Bacillus coli* and allied organism) feeds on carbohydrates preferably.

Second type (putrifiers) prefers proteins.
 - b. The checking action of *Bacillus coli* on putrifying bacteria when carbohydrates are present.
6. Substances, poisonous and offensive, that may be formed in the large intestine and absorbed into the blood under unhygienic conditions.
7. Their possible role as prime or secondary factors in muscular fatigue, nervous irritability, neurasthenia, somnolence, hardening of the arteries, rheumatism, anaemia.

III. Prevention and eradication of autointoxication.

1. Prompt digestion and absorption.
2. Regularity of bowel movement; good peristaltic tone.
3. Avoidance of putrefactive bacteria.

4. Reduction and inhibition of putrefactive bacteria
by—
 - a. Intestinal antiseptics.
 - b. Laxatives.
 - c. "Lactic acid treatment."
5. Regulation of diet.
The teachings of Graham and Fletcher.

IV. Summary.

References: Stiles, *Nutritional Physiology*.
Metchnikoff, *The Prolongation of Life*.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE XXIII.

Factors in Digestion other than Diet.

I. The normal appetite. Nature of hunger.

1. Their normal, regular recurrence.
2. Natural and artificial stimulation.
 - a. Sauces and spices.
 - b. Physical exercise and low external temperature.
 - c. Mental activity.
 - d. Pleasant anticipations and associations.

II. Successful digestion.

1. Its dependence on blood supply to stomach and intestines.
2. on the nature of the food. (See previous lecture.)
3. on emotional condition.

III. Prejudicial and favorable influences.

1. Violent physical exercise before and after meals.
2. External temperature.
3. Warm and cold baths.
4. Temperature of the food.
5. Congestions.
6. Emotions.
 - a. Pleasant companionship.
 - b. Pleasant odors and tastes.
 - c. Homesickness. Worry. Despondency. Excitement.
7. Sleep. Reciprocal effects.
8. Eyestrain.

IV. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 264-265, 350; 352, par. 7-353.
Stiles, *Nutritional Physiology*.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE XXIV.

The Hygiene of Excretion.

I. The main avenues of waste disposal.

1. Intestines.
2. Kidneys.
3. Lungs.
4. Skin.

II. Intestinal waste.

1. The composition of the colon content.
2. The effect of diet on colon content.
3. Regularity of evacuation.
4. Intestinal lag—regular tardiness.
5. Special cathartics on occasion only.
6. Gentle aperients as regular parts of the diet.
 - a. Water.
 - b. Fruit.
7. Moderate shaking of the viscera in exercise.
8. Importance of good general body tone.

III. Excretion via the kidneys.

1. The normal appearance of urine and constituents thereof.
2. Diet and the work of the kidneys.
3. The effect of exhausting muscular work—
of violent emotion.
4. Amount of urine in hot and cold weather.
5. The prime importance of water. Other diuretics.
6. Normal irregularities in composition and appearance of urine. Quack alarmism. "Pains in the small of the back."

IV. The lungs. Carbondioxide and water.

V. The skin.

VI. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 178-181; 128-131.

Galbraith, *Personal Hygiene and Physical Training for Women*.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE XXV.

The Hygiene of Excretion. The Skin.

I. Structure of the skin.

II. The skin's excretion.

1. Its importance as waste often unduly magnified.
2. Shedding one's skin.
3. The heat-regulating function of perspiration.
4. Clothing.

III. Bathing.

1. Kinds of baths.

- a. Russian, Turkish, etc.
- b. For vasomotor exercise primarily.
- c. For cleanliness primarily.

(1) Soap.

(2) The pores. The skin fabric.

2. Cold baths and exercise.

- a. Duration.
- b. Reaction.
- c. The shower and needle baths. Mechanical effects.

3. Baths in relation to sleeping and feeding.

IV. Skin and mucous membranes. Congestions.

V. Sunburn. Tanning.

The nature of the processes.

Beneficial effects—fictitious and otherwise.

VI. Cosmetics.

VII. Skin infections.

1. Avenues for the entrance of bacteria.
2. Acne. "Blackheads." Enlarged pores.
3. Prevention and treatment.

VIII. Care of the hair.

1. The essentials to good hair. Blood supply.
2. Dandruff. Dry and oily scalp.
3. Cleansing, brushing, massage.

IX. Nails. Corns.

X. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 181-186; 413-417; 418-424.
 Galbraith, *Personal Hygiene and Physical Training for Women*.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE XXVI.

What is Good Air for Respiration?

- I. The composition of pure air.
- II. The composition of air in the lung sacs.
- III. Changes produced in room air—in kind and in amount—by breathing.
 1. Reduction of oxygen.
 2. Increase of carbon dioxide.
 3. Odors and organic substances.
 4. Increase of moisture.
 5. Rise in temperature.
- IV. Symptoms of stuffy air. To what are they due?
 1. To the chemical changes above?
 - (a. The lower limit in the oxygen supply.
 - b. The upper limit of carbon dioxide.Are they ever reached in ordinary experience?)
 2. To unknown chemical changes of which the above are indices?
 3. To odors and mental suggestion?
 4. To rising temperature and humidity.
- V. Classic examples of extraordinary vitiation of respired air.
- VI. The instinct for "chemically pure" air.

The danger of trying to make it replace exercise.
- VII. Sea air. Mountain air. Night air.
- VIII. Dust and bacteria in the air.
- IX. Poisonous gases.

Illuminating gas—in the home—in the laboratory.
Leaky furnaces.
Gas and coal stoves.
Tobacco smoke.

X. Ozone.

1. As a normal constituent.
2. Artificial ozonizers.

XI. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 162-176.
Macfie, *Air and Health*.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE XXVII.

What is good air —for Skin and Mucous Membranes?

I. The background of consciousness — skin sensations—
pressure and temperature sensations.

Presence or absence of such sensations as air is still and
warm, or moving and cool.

Incentive to liveliness or cause of lethargy.

II. The normal body temperature. Its precise regulation.

1. The balance of heat supply and heat loss.

a. Conditions at low temperature.

b. Conditions at room temperature.

c. Conditions at high temperatures.

2. Disturbance of this balance at high external temperatures. Sense of oppressiveness, due to —

a. Possible actual rise in body temperature.

b. The flushed, heated skin.

c. Instinctive lethargy.

3. Aggravating influence of still air;
of moist air.

III. The aerial blanket of the sedentary person.

IV. Practical corollaries.

1. Clothing.

2. The value of electric fans.

3. Ventilation—of class rooms—of sleeping and living
rooms.

V. Draughts.

1. Continuous. Gusty.

2. Neurasthenic irregularities.

3. Congestions.

4. Open fireplace.

5. Sudden changes of temperature.

6. Wraps, in and out of doors. Neck mufflers.

VI. Temperature and humidity in relation to the mucous membrane of the respiratory tracts.

VII. Humidity at low temperatures.

VIII. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 187-210; 442-450.

Stiles, *Nutritional Physiology*.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE XXVIII.

Health and Disease.

I. The meaning of "health."

1. Objective.
2. Subjective.

Properly arranged conditions of health—Hygiene.

II. The meaning of "disease."

1. Classification of diseases.
2. Preventable and non-preventable diseases.
3. "Fever" and diseases of organic defect.

III. The occurrence of "fevers."

1. The sudden onslaught on the community—epidemic.
2. Their continuous presence—endemic.
3. The history of the prevention of "fevers."

IV. The causes of "fevers."

1. The facts of parasitism among animals.
2. Bacteria.

Disease producing bacteria. Harmless bacteria.

Commercially profitable bacteria.

3. Disease producing bacteria. Whence do they come?
How do they gain entrance to the body?

V. The Germ Theory of disease. Opposition to this "theory."

VI. What diseases are most destructive?

VII. Are we more or less susceptible at different ages?

VIII. History of the successful warfare on disease.

1. The positive side—health security.
2. The negative side—avoidance of disease.

IX. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 293-294; 296-303; 463-489.

MacKenzie, *Health and Disease*.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE XXIX.

The Conflict with Disease.

I. The conflict between disease producing parasites and the human organism.

Factors in the latter's success.

- a. Offense.
- b. Defense.

II. Measures of offense.

Outside the body—cutting the lines of communication by

- a. Sterilization.
- b. Cleanliness.
- c. Destruction of carrying agents.

III. Measures of defense. Points of attack.

Inside the body.

- a. The skin and mucous membranes.
Hair follicles. Sweat and sebaceous glands.
Mechanism for removing detritus from respiratory passages.
- b. The parable of the barrel of apple juice.
- c. The prime differences between the apple juice and the body fluids.

(1) What is vital resistance? $\frac{R}{M} = D.$

- (2) Some possible factors in vital resistance.
The field army of the body fluids—leucocytes.
Siege artillery—general body cells.

IV. Special means of enhancing or aiding the body's defenses. Immunity.

1. Acquired immunity.

a. Naturally acquired. "Mumps in the family?
Have you had them?"

b. Artificially acquired. *E. g.* vaccination.

2. Aiding the body's defenses. Antitoxine.

V. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 489-504.

Sedgwick, *Sanitary Science and Public Health*.

Councilman, *Disease and its Causes*.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

LECTURE XXX.

Public Health.

I. Dealing with health in the individual—in the aggregate. The reality of public health.

II. Community life. The health situation compared with that of the individual.

1. Foods and drink from common sources.
 - a. Water supply. The possible dangers. Safeguards. Foreign travel.
 - b. Milk supply.
 - c. Food. Purity. Inspection. Restaurant service.
 - d. Special foods. Oysters.
2. Housing. Parks and playgrounds. Gymnasias. Baths. Streets. Dust and soot.
3. Disposal of sewage and refuse.
4. Hygienic education and propaganda.
5. Recognition and isolation of infectious disease.
6. Immunizing against infectious disease.

III. The college as a parcel of public health.

The problems here offered.

- a. Wholesome food and airy lodging.
- b. Safe milk and water supply.
- c. Decent disposal of waste.
- d. Prevention of possible infection. (Common cups and towels.)
- e. Isolating infectious cases.
- f. Providing opportunity for exercise and other hygienic diversion.

IV. Summary.

References: Hough and Sedgwick, *The Human Mechanism*, pp. 509–517; 529–534.

Sedgwick, *Sanitary Science and Public Health*.

The space below is reserved for the written assignment. Do not use it for lecture notes. Write briefly, comprehensively, and legibly.

REFERENCES.

It would be impossible to choose a list of books covering the subject of hygiene, all of which would come nicely within the student's comprehension. Some of the books and magazine articles in the following bibliography are written specially for the reader of little technical preparation. Others confront the elementary student with moderate difficulties. But from all of them the interested and inquiring student may get points of view and in them see methods of presentation other than and supplementary to those of the text-book and lectures. Beyond, and open to the initiative of anyone inclined to go further into the subject of the conservation of health and physical effectiveness, there lies an increasing and improving bibliographical field.

Different texts in elementary **PHYSIOLOGY** emphasize the points of the subject differently. The student may broaden his foundation by reading (in addition to the assigned text), in Huxley's *Lessons in Elementary Physiology* (Macmillan), Fiske's *Structure and Functions of the Body* (Saunders), Stiles' *Nutritional Physiology* (Saunders) and Martin's *Human Body* (Holt).

In general **PERSONAL HYGIENE**, Pyle's *Manual of Personal Hygiene* (Saunders) consists of articles on the various divisions of the subject by specialists in those divisions. It gives the medical point of view.

In the subject of **POSTURE**, Bancroft's *The Posture of School Children* (Macmillan) includes chapters on adult posture. Goldthwait's *The Relation of Posture to Human Efficiency* is an enthusiastic and forceful tract on the manifold advantages of correct carriage.

The subject of **PHYSICAL EXERCISE** and **FATIGUE** can scarcely be further entered by the student without reference to many magazine articles, some of which are Hough's *On the Physiological Effects of Moderate Muscular*

Exercise, etc. (*Amer. Phys. Educ. Rev.*, XIV, 4, Apr., 1909); Lee—*Physical Exercise from the Standpoint of Physiology* (*Amer. Phys. Educ. Rev.*, XIV, 4, Apr., 1909); Storey—*General Exercise* (*Amer. Phys. Educ. Rev.*, XVII, 1, Jan., 1912). Woods Hutchinson's *Exercise and Health* (Outlook Publishing Co.) is vigorous and amusing but should be read with caution.

On the bearing of FATIGUE on economic efficiency and likewise, therefore, on efficiency in student life, the student will find in Goldmark's *Fatigue and Efficiency* facts and ideas of practical interest. Popular articles by leading physiologists on the nature of fatigue are—Lee's *The Nature of Fatigue* (*Popular Science Monthly*, Feb., 1910) and Stiles' *The Elements of Fatigue* (*Science Conspectus*, III, 2, 1913).

The literature of MENTAL ACTIVITY centers largely around worry, allied emotions, and neurasthenia. Stiles' *The Nervous System and its Conservation* (Saunders) is excellent in style and matter. Courteney's *The Conquest of Nerves* (Macmillan), Walton's *Those Nerves* (Lippincott), and *Why Worry?* (Lippincott) are practical and readable.

For EYE, EAR, NOSE, and THROAT, —Pyle's *Manual of Personal Hygiene*.

Under FOOD and DIGESTION, we may suggest Jordan's *The Principles of Human Nutrition* (Macmillan) as a handbook of moderate size. Locke's *Food Values* (Appleton) is a valuable compilation of tables. Lusk's *The Fundamental Basis of Nutrition* (Yale University Press) is an extremely readable and valuable treatment in brief space of the essentials of nutrition. Chittenden's *The Nutrition of Man* (Stokes) is the scientific presentation of the claims for the benefits of light feeding. Crichton-Browne's *Delusions in Diet* (Funk and Wagnalls) is a clever attack on these low diet claims. Olsen's *Pure Foods* (Ginn) is a small book of information on food adulteration.

The question of the relation of AIR to health are set forth for the lay reader by Macfie in *Air and Health* (Dutton).

For the general subject of HEALTH and DISEASE, and PUBLIC HEALTH, many references might be given. Sedgwick's *Sanitary Science and Public Health* (Macmillan) gives at length the historical background of public health, the groundwork of theory and fact of germ disease, and its prevention through sanitation. Adam's *The Health Master* (Houghton Mifflin) presents the possibilities of hygiene, sanitation and preventive medicine in attractive narrative form. Mackenzie's *Health and Disease* (Williams and Nordgate) and Councilman's *Disease and its Causes* (Williams and Nordgate) are written in popular style by authorities in pathology and public health practice.



S. Gen. Ly

NOV 4 - 1914

QT 18 H855s 1914

06910560R



NLM 05047506 5

NATIONAL LIBRARY OF MEDICINE